Mated female *T. mauretanicus* flew low over the vegetation searching for hosts. On contacting a *Hippocrepis* individual, females spent a considerable time crawling over the surface of the legume, apparently searching for optimal oviposition sites. Detailed studies were made of oviposition choice, and will be presented elsewhere. Notably, females appeared to select small individuals of the host, with few or no mature flowers. Oviposition on immature hosts may anticipate growth of the plant for maturing larvae. Like many other butterflies, females also distributed most eggs on those individual hostplants most isolated from conspecifics. Such egg distributions have been argued to be the outcome of searching patterns, where isolated plants are more frequently encountered by a female (Courtney & Courtney, 1982; The 'edge-effect' in butterfly oviposition: causality in *Anthocharis cardamines* and related species. Ecol. Ent. 7:131-137).

Eggs were distributed predominantly on the buds and young leaves of growing plants. The white eggs appeared to develop a black spot in the central depression as they matured. Unusually for a Hairstreak, the eggs were often laid in small batches, with up to 6 eggs of identical age placed closely together. More isolated plants were found to have bigger egg batches. No effect of plant size on egg batch size was found. Some larvae were found or reared. They have the typical squat hairstreak form, with a greenish ground colour, lateral stripes of yellow and purple and a dorsal stripe of purple within two yellow bands.

Some of the colonies of *T. mauretanicus* found are in non-agricultural areas which are used only sporadically for grazing. By far the majority of populations are associated with agricultural areas, where *H. multisiliquosum* occurs as a casual weed or as an invader of fallow land. Whilst present land practices continue, the future of host and butterfly populations seems secure. However with increasing use of herbicides and pesticides in lowland areas, and persistent overgrazing by pastoral flocks in some upland areas, some decrease in numbers of this attractive and unusual hairstreak is to be expected.

Acknowledgments: J. Forsberg, J. Binge, and B. Eversham helped with fieldwork. Research was supported by N.E.R.C. (1981-1982) and a grant of the National Geographic Society (1981, through F. S. Chew). I am in receipt of a Fellowship of N.E.R.C.

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An Effect of the Colony Edge on Gatekeeper Butterflies, *Pyronia tithonus* L. (Satyridae)

How are the boundaries of discrete butterfly colonies maintained? Gatekeeper butterflies, *Pyronia tithonus*, were studied in a herb-rich unimproved pasture in west Dorset, England, in 1980. The site was divided into 20 m by 20 m quadrats. When a butterfly was encountered in a quadrat it was followed for two minutes or until it left that quadrat, whichever was the shorter. The direction taken by butterflies leaving quadrats was noted (i.e., into which of the adjacent quadrats).

One hundred twenty butterflies were followed in 7 quadrats. Males tended to leave quadrats more frequently than females (43/60 males versus 33/60 females; $X^2 = 2.91, 0.05 < p < 0.1$) which may be attributable to their mate searching activities. Both sexes preferentially flew towards the centre of the old meadow when they were

near its margin (75 flew across 20 available quadrat edges towards or within the meadow versus only 1 flying across 8 available quadrat edges away from the meadow; $X^2 = 26.3$, $p < 0.001$). No individual flew into or over the adjacent wood and only one butterfly flew from the old meadow into an adjacent field sown to grass (*Lolium multiflorum* Lam). However, gatekeepers occasionally did fly into this sown pasture to nectar on *Cirsium vulgare* Ten. (Compositae), but none of such nectaring butterflies encountered were observed to fly out further into the sown pasture, and 11 flew back into the old meadow.

The gatekeepers' mobility would seem to permit the colony to disperse without the tendency to keep within the old pasture. The behavioural mechanism by which they remained confined to the old pasture was not investigated. The woodland margin is distinct, but the old meadow/sown pasture boundary is more subtle. There were more flowers available, longer turf, more available foodplants, and a greater adult butterfly density in the old meadow than in the sown pasture. Gatekeepers could be reacting to any or a combination of these, but experimental manipulation of density, sex ratio, and habitat quality is needed if these factors are to be distinguished.

Acknowledgments: My thanks to Tom Coaker, Sally Corbet, Mark Cheverton and an anonymous reviewer for helpful comments on the manuscript.

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Hide and/or Seek

James A. Scott's note on "Mate-Locating Behavior of *Gnophaela latipennis vermiculata* G.&R." (J. Res. Lepid. 20:51) raises the question of whether nectaring solitaries are unmated females. Inasmuch as these Pericopids are reported to visit yellow or white-flowered Composites during the afternoon, my own experiences on Big Pine Key, Florida, with the Syntomid *Syntomeida epilais jucundissima* Dyar, nectaring during the same time of day on the Composite *Flaveria linearis* Laq., suggest a possibility which might make mating safer for even aposematic animals. These slow-flying Syntomids are so conspicuous that their local name is "Uncle Sam Bug." Yet the gunmetal-blue moths are curiously hard to see against the yellow flowerheads on which they nectar when the sun is getting low. Partly because of corymb density, shadows in the yellow flowerheads soon deepen to blue, and sporadic openings are matched by translucent wingspots. (The sympatric Pericopid *Composia fidelissima vagrans* Bates, colored like the Syntomid, with the same Apocynaceous larval hostplants, and also with the same tendency to afternoon flight, nectars differently at least when both moths happen to be numerous.)

Whether the colors of shadows can protect nectaring solitaries from predators other than lepidopterists, or will protect copulating pairs from interfering conspecifics or mimics during a population crash is an interesting question. But surely in many Rocky Mountain "moist valley bottoms" shadows would lengthen early as in subtropical flatlands. Even if individual *G. l. vermiculata* are aposematic when flying, mating pairs may be facultatively cryptic if the yellow or white Composites on which they rest prove to transmit afternoon light as effectively as the moth's open wingpattern would suggest.

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